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Dated: December 10, 2007 Signature: Lorraine Davidoff
(Lorraine Davidoff)

Docket No.: 50715/P004US/10311738
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
F. C. Greer et al.

Application No.: 10/662,992 Confirmation No.: 2249

Filed: September 15, 2003 Art Unit: 1754

For: PROCESS FOR THE PRODUCTION OF METAL FLUORIDE MATERIALS Examiner: N. Y. M. Nguyen

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under 37 C.F.R. § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on October 10, 2007, and is in furtherance of said Notice of Appeal.

The fees required under 37 C.F.R. § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.02:

I.	Real Party In Interest
II	Related Appeals and Interferences
III.	Status of Claims
IV.	Status of Amendments
V.	Summary of Claimed Subject Matter
VI.	Grounds of Rejection to be Reviewed on Appeal
VII.	Argument
VIII.	Claims Appendix
IX.	Evidence Appendix
X.	Related Proceedings Appendix

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Platinum Research Organization LLC
2828 Routh Street, Suite 500,
Dallas, Texas

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 34 claims pending in application.

B. Current Status of Claims

1. Claims canceled: none
2. Claims withdrawn from consideration but not canceled: none
3. Claims pending: 1-34
4. Claims allowed: none
5. Claims rejected: 1-34

C. Claims On Appeal

The claims on appeal are claims 1-34

IV. STATUS OF AMENDMENTS

Applicants did not file an Amendment After Final Rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The following provides a concise explanation of the subject matter defined in each independent claim involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. It should be noted that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

According to one claimed embodiment of the present invention, such as that of independent claim 1, a process for the production of metal fluorides comprising: introduce a predetermined weight of anhydrous hydrofluoric acid into a reaction vessel set to a predetermined reaction temperature and initiate a mixing action (page 10, lines 11 – 12; page 12, lines 36 – 37; page 19, lines 24 – 25); preheat a predetermined weight of anhydrous metal to the predetermined reaction temperature (page 10, lines 18 – 19; page 13, lines 16 – 18; page 15, lines 13 – 20; page 19, lines 30 – 31; page 22, lines 1 – 2); introduce aliquots of the anhydrous metal into the anhydrous hydrofluoric acid in said reaction vessel at intervals until the entire predetermined weight of the anhydrous metal has been added (page 10, lines 21 – 24; page 13, lines 16 – 18; page 16, line 23 – page 17, line 9; page 19, line 31 – page 20, line 9), wherein the anhydrous metal reacts endothermically with the anhydrous hydrofluoric acid (page 3, lines 9 – 13; page 5, lines 5 – 8); remove excess anhydrous hydrofluoric acid from the reaction vessel (page 11, lines 15 – 19, page 14, lines 6 – 13; page 20, lines 21 – 32); and remove a metal fluoride resultant product from the reaction vessel (page 11, lines 27 – 28; page 14, lines 15 – 17; page 20, line 34 – page 21, line 43).

According to one claimed embodiment of the present invention, such as that of independent claim 31, a process for the production of metal fluorides comprising: providing hydrofluoric acid in a reaction vessel; introducing aliquots of a metal reactant into the hydrofluoric acid in the reaction vessel at intervals until a predetermined weight of the metal has been added (page 10, lines 21 – 24; page 13, lines 16 – 18; page 16, line 23 – page 17, line 9; page 19, line 31 – page 20, line 9), wherein the weight ratio of the hydrofluoric acid to metal is a multiple of a stoichiometric combining weight of the metal (page 18, lines 1 – 13; page 20, lines 1 – 9; page 22, lines 4 – 8); agitating the hydrofluoric acid and metal reactants

in the reaction vessel (page 15 line 30 – page 16, line 14; page 19, lines 27 – 28; page 22, lines 16 – 18); venting excess hydrogen chloride gas generated during a reaction between the hydrofluoric acid and metal reactants (page 13, lines 30 – 33); and maintaining the hydrofluoric acid and metal reactants at a predetermined pressure and predetermined temperature for a minimum period following the introduction of the metal reactants (page 14, lines 1 – 4; page 20, lines 15 – 19).

According to one claimed embodiment of the present invention, such as that of independent claim 34, a process for producing ferric trifluoride comprising: providing hydrofluoric acid in a reaction vessel (page 12, lines 36 – 37); introducing ferric trichloride into the hydrofluoric acid in the reaction vessel at intervals until a weight ratio of the anhydrous hydrofluoric acid to the ferric trifluoride is between 2 and 60 (page 13, lines 16 – 18); agitating the hydrofluoric acid and ferric trichloride in the reaction vessel (page 15 line 30 – page 16); venting excess hydrogen chloride gas generated during a reaction between the hydrofluoric acid and ferric trichloride(page 13, lines 30 – 33); removing excess anhydrous hydrofluoric acid from the reaction vessel (page 14, lines 6 – 13); and removing a ferric trifluoride resultant product from the reaction vessel (page 14, lines 15 – 17).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Claims 1 – 24, 26, and 28 – 30 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

B. Claims 1 – 34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 4,034,070 to Wojtowicz et al. (hereinafter "Wojtowicz") in view of U.S. Patent 4,938,945 to Mahmood et al. (hereinafter "Mahmood"), optionally in view of U.S. Patent 5,286,882 to Zuzich et al. (hereinafter "Zuzich").

VII. ARGUMENT

A. Rejections under 35 U.S.C. § 112

Claims 1 – 24, 26, and 28 – 30 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Appellee asserts, "Where applicant acts as his or

her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term . . . ." Additionally, Appellee asserts "The term "metal" in claim 1 is used by the claim to mean "metal compound" (note claim 3), while the accepted meaning is pure "metal" or possibly a metal alloy." Final Office Action, page 2. Appellants respectfully submit that Appellants have not used the term "metal" contrary to its ordinary meaning. It is common in the context of describing reactions, for one skilled in the art to refer to "metal" to represent elemental metal or a metal compound supplying the elemental metal to the reaction. Moreover, if each claim is read in light of the specification and the claims as a whole, one skilled in the art would know that "metal" in the context of the current disclosure means elemental metal or a compound that supplies the elemental metal to the reaction.

Specifically, paragraphs [0004], [0005], [0008], [0036] and [0094] of the specification discloses that the metal reactants may be elemental metal or a metal compound. Additionally, the meaning of claim language may be evidenced by a variety of sources, including "the words of the claims themselves." *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 75 USPQ2d 1321, 1326 (Fed. Cir. 2005) (en banc). As apparently recognized by Appellee in the Final Office Action, claim 3, which depends from claim 1, implies that "metal" in the claims represent elemental metal and metal compounds. *See* Final Office Action, page 2. Claim 3 recites, "wherein the anhydrous metal is a metal compound." Thus, the metal compound is a subset of the anhydrous metal recited in claim 1. The claims and the specification as a whole, therefore, makes clear to one skilled in the art that "metal" in the application means elemental metal or a metal compound supplying elemental metal. Accordingly, Appellants respectfully request that the Board reverse this rejection, under 35 U.S.C. § 112, of claims 1 – 24, 26 and 28 – 30.

With regard to the 35 U.S.C. § 112 rejections specific to claims 28 – 30, Appellants will not contest Appellee's rejections and hereby express a willingness to cancel these claims based upon this specific rejection, upon allowance of the other claims.

B. Rejections under 35 U.S.C. § 103(a)

Claims 1 – 34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wojtowicz in view of Mahmood or in view of Zuzich. The Examiner bears the initial burden

of factually supporting any prima facie conclusion of obviousness. M.P.E.P. § 2142; *In re Peehs*, 612 F.2d 1287, 204 USPQ 835, 837 (CCPA 1980). In an obviousness rejection, "[u]nder § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved." *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 15 – 17 (1966). With regard to the claims rejected under 35 U.S.C. § 103(a) in the current application, the Office Actions do not show that claims 1 – 34 are obvious under the framework set out in *Graham*. Among other things, the Office Actions do not reflect that the differences between the applied art and the claims at issue have been properly ascertained and makes conclusory statements to support the obviousness rejections.

The differences between claims 1 – 34 and the applied art, properly construed, sets the claims apart from the applied art. *See United States v. Adams* 383 U.S. 39, 48 (holding that the Government erred in concluding that wet batteries are old in the art because, among other things, "the fact that the Adams battery is water-activated sets his device apart from the prior art.") The rejected claims are considered below.

VIII. Independent Claims

A. Claim 1

Claim 1 recites, "introduce aliquots of the anhydrous metal into the anhydrous hydrofluoric acid in said reaction vessel at intervals . . . ." Appellee concedes that Wojtowicz does not teach "the step of adding anhydrous metal in steps." Final Office Action, page 5 – 6. Appellee then cites to Mahmood for teaching how the anhydrous metal is added. *Id.*

However, in Mahmood, hydrofluoric acid is added to the metal compound. *See* Col. 3, lines 38 – 45 (stating, "Liquid HF, when added on top of the $FeCl_3$, forms a blanket which protects the reaction mass and especially the FeF_3 product from contact with oxygen or reactive agents such as atmospheric water." *See* Col. 3, lines 42-45). Because Mahmood teaches adding hydrofluoric acid to the metal compound already in the reaction vessel, Mahmood does not teach the limitations of claim 1 that requires "introduce aliquots of the anhydrous metal into the anhydrous hydrofluoric acid in said reaction vessel at intervals . . . ."

In response to Appellants' remarks, above, that Mahmood cannot properly be combined to render claim 1 obvious, Appellee has cited to *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) and *In re Gibson*, 5 USPQ 230 (CCPA 1930). Final Office Action, page 8. In citing *In re Burhans*, Appellee asserts that "selection of any order of performing process steps is prima facie obvious in the presence of new or unexpected results." *Id.*

This assertion by Appellee illustrates that the current obviousness rejection is inconsistent with the requirements set out in *Graham*. In fact, Appellee's rejection amounts to "a per se rule of obviousness." *See Ex parte Claverie*, 2003 WL 25277874. *2 (Bd. Pat. App. & Interf.) (disapproving of an Examiner stating, without analysis, that "it is prima facie obvious to change the sequence of adding reagents in the absence of new or unexpected results."). As the Board of Patent Appeals and Interferences (the "Board") has properly pointed out:

> The use of per se rules, while undoubtedly less laborious than a searching comparison of the claimed invention--including all its limitations--with the teachings of the prior art, flouts section 103 and the fundamental case law applying it. Per se rules that eliminate the need for fact-specific analysis of claims and prior art may be administratively convenient for PTO examiners and the Board. Indeed, they have been sanctioned by the Board as well. But reliance on per se rules of obviousness is legally incorrect and must cease.

Id. Here, Appellee has not provided a fact-specific analysis of the claims showing that Mahmood discloses or suggests introducing aliquots of the anhydrous metal into the anhydrous hydrofluoric acid in the reaction vessel at intervals.

Appellee alternatively cites to Zuzich, col. 13, lines 1 -5 as teaching the limitation requiring introducing aliquots of the anhydrous metal into the anhydrous hydrofluoric acid in the reaction vessel at intervals until the entire predetermined weight of the anhydrous metal has been added. Final Office Action, page 6. However, the cited portion of Zuzich does not teach the limitations of the claims at issue. In fact the use of Zuzich in a combination to render claim 1 obvious illustrates that Appellee is "us[ing] hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *See In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780, 178. "A fact finder should be aware . . .

of the distortion caused by hindsight bias . . . ." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S.____ (2007) (citing *Graham*).

Claim 1 requires an endothermic reaction. Zuzich does not disclose an endothermic reaction. Appellee concedes this. Final Office Action, page 8. Nevertheless, Appellee concludes, "It would have been obvious . . . to expect the same result when the teaching of Zuzich is applied for an endothermic reaction . . . ." Appellant respectfully submits that an obviousness rejection on this basis is merely hindsight reconstruction. This is particularly evident when one considers that Zuzich, apart from failing to teach an endothermic reaction, pertains to a reaction entirely different from the reactions recited in claim 1. Zuzich is directed to "preparing polyethercyclicpolyol by heating an alkali or alkaline earth metal hydroxide with a polyol and epihalohydrin or epoxy alcohol to initiate an addition reaction, and adding epoxy resin to the addition reaction mixture prior to the addition reaction going to completion." Zuzich, Abstract. In sum, though the *KSR* Court recently warned against hindsight reconstruction in obviousness rejections, Appellee has fallen prey to this practice. Appellee, therefore, has not shown that Zuzich is properly combined with Wojtowicz.

In sum, Appellee has not shown that the applied art teach all the limitations of claim 1. Accordingly, Appellants respectfully requests that the Board reverse the current rejections, under 35 U.S.C. § 103, of claim 1.

B. Claim 31

Claim 31 recites, "introducing aliquots of a metal reactant into the hydrofluoric acid in the reaction vessel at intervals. . . ." Appellee concedes that Wojtowicz does not teach "the step of adding anhydrous metal in steps." Final Office Action, page 5 – 6. Appellee then cites to Mahmood for teaching how the metal is added. *Id.*

As discussed with regard to claim 1 above, in Mahmood, hydrofluoric acid is added to the metal compound. *See* Col. 3, lines 38 – 45. Because Mahmood teaches adding hydrofluoric acid to the metal compound already in the reaction vessel, Mahmood does not teach the limitations of claim 31 requiring, "introducing aliquots of a metal reactant into the hydrofluoric acid in the reaction vessel at intervals. . . ."

Moreover, similar to the discussion made with regard to claim 1 above, Mahmood cannot be properly combined with Wojtowicz to render claim 31 obvious because Appellee has not provided a fact-specific analysis of the claims showing that Mahmood discloses or suggests introducing aliquots of a metal reactant into the hydrofluoric acid in the reaction vessel at intervals. The asserted combination is improper especially in light of the fact that in Mahmood, hydrofluoric acid is added to the metal compound.

Appellee alternatively relies on Zuzich to render claim 31 obvious. Zuzich cannot be properly combined with Wojtowicz to render claim 31 obvious. Zuzich teaches nothing about reacting hydrofluoric acid with metal. Rather, Zuzich teaches "preparing polyethercyclicpolyol by heating an alkali or alkaline earth metal hydroxide with a polyol and epihalohydrin or epoxy alcohol to initiate an addition reaction, and adding epoxy resin to the addition reaction mixture prior to the addition reaction going to completion." Zuzich, Abstract. Therefore, Appellee has not shown that Zuzich is properly combined with Wojtowicz.

In sum, Appellee has not shown that the applied art teach all the limitations of claim 31. Accordingly, Appellants respectfully requests that the Board reverse the current rejections, under 35 U.S.C. § 103, of claim 31.

C. Claim 34

Claim 34 recites, "introducing ferric trichloride into the hydrofluoric acid in the reaction vessel at intervals . . . ." Appellee concedes that Wojtowicz does not teach "the step of adding anhydrous metal in steps." Final Office Action, page 5 – 6. Appellee then cites to Mahmood for teaching how the metal is added. *Id.*

As discussed with regard to claim 1 above, in Mahmood, hydrofluoric acid is added to the metal compound. *See* Col. 3, lines 38 – 45. Because Mahmood teaches adding hydrofluoric acid to the metal compound already in the reaction vessel, Mahmood does not teach the limitations of claim 34 requiring. "Claim 34 recites, "introducing ferric trichloride into the hydrofluoric acid in the reaction vessel at intervals . . . ."

Moreover, similar to the discussion made with regard to claim 1 above, Mahmood cannot be properly combined with Wojtowicz to render claim 34 obvious because Appellee has not provided a fact-specific analysis of the claims showing that Mahmood discloses or suggests introducing ferric trichloride into the hydrofluoric acid in the reaction vessel at intervals. The asserted combination is improper especially in light of the fact that in Mahmood, hydrofluoric acid is added to the metal compound.

Appellee alternatively relies on Zuzich to render claim 34 obvious. Zuzich cannot be properly combined with Wojtowicz to render claim 34 obvious. Zuzich teaches nothing about reacting ferric trichloride with hydrofluoric acid. Rather, Zuzich teaches "preparing polyethercyclicpolyol by heating an alkali or alkaline earth metal hydroxide with a polyol and epihalohydrin or epoxy alcohol to initiate an addition reaction, and adding epoxy resin to the addition reaction mixture prior to the addition reaction going to completion." Zuzich, Abstract. Therefore, Appellee has not shown that Zuzich is properly combined with Wojtowicz.

In sum, Appellee has not shown that the applied art teach all the limitations of claim 34. Accordingly, Appellants respectfully requests that the Board reverse the current rejections, under 35 U.S.C. § 103, of claim 34.

IX. Dependent claims 2 – 30, 32 and 33

Claims 2 – 24, 26 and 29 depend from claim 1, and claims 25, 27 and 32 – 33 depend from claim 31. Thus, claims 2 – 24 and 26 inherit the limitations of claim 1 and claims 25, 27, 28, 30 and 32 – 33 inherit the limitations of claim 31. As discussed above, the applied art does not teach all the limitations of claims 1 or 31 and for at least this reason claims 2 – 30 and 32 – 33 are patentable.

"The reasons for any adverse action or any objection or requirement will be stated in an Office action and such information or references will be given as may be useful in aiding the applicant . . . ." C.F.R. § 1.104 (2). "The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified." M.P.E.P. 706. Appellee has not shown the limitations in the dependent claims are obvious in view of the applied art. In fact, there has been no fact-specific analysis of each dependent claim to ascertain the

differences between the dependent claims and the applied art. *See generally*, Office Actions. Instead, Appellee asserts that "it is well settled that patentability of method claims cannot be predicated on apparatus limitations." Final Office Action, page 6. Appellants would like to point out that "[t]he patent statute, 35 U.S.C. 100(b), impliedly permits recitations of structure in method claims." *Ex parte Pfeiffer*, 135 USPQ 31, 33 (Pat. Off. Bd. App. 1961). "[T]he mere inclusion of structure in a method claim does not itself render the claim unstatutory or fatally defective." *Id.* As such, Appellee needs to consider whether all the dependent claims are patentable even if they recite apparatus limitations. Additionally, Appellee must make any reasoning of obviousness explicit. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S.____ (2007).

In sum, Appellee has not shown the applied art renders the dependent claims 2 – 27, 32 and 33 obvious. Accordingly, Appellants respectfully request that the Board reverses the rejections, under 35 U.S.C. § 103(a), of claims 2 – 27, 32 and 33.

X. CLAIMS APPENDIX

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

XI. EVIDENCE APPENDIX

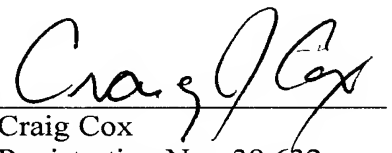
No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

XII. RELATED PROCEEDINGS APPENDIX

There are no related proceedings and consequently no copies of decisions rendered by a court or the Board in such proceedings.

Dated: December 10, 2007

Respectfully submitted,

By 

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VIII. CLAIMS APPENDIX

1. A process for the production of metal fluorides comprising:

introduce a predetermined weight of anhydrous hydrofluoric acid into a reaction vessel set to a predetermined reaction temperature and initiate a mixing action;

preheat a predetermined weight of anhydrous metal to the predetermined reaction temperature;

introduce aliquots of the anhydrous metal into the anhydrous hydrofluoric acid in said reaction vessel at intervals until the entire predetermined weight of the anhydrous metal has been added, wherein the anhydrous metal reacts endothermically with the anhydrous hydrofluoric acid;

remove excess anhydrous hydrofluoric acid from the reaction vessel; and

remove a metal fluoride resultant product from the reaction vessel.

2. The process of claim 1 wherein the mixing action is selected from the group consisting of:

rotation,

stirring and

agitation.

3. The process of claim 1 wherein the anhydrous metal is a metal compound.

4. The process of claim 1 wherein the predetermined weight of anhydrous metal is introduced into the reaction vessel through a plunger device and port designed for such purpose.

5. The process of claim 1 further comprising:

exhausting an internally generated gaseous resultant product.

6. The process of claim 5 wherein the internally generated gaseous resultant product is exhausted through an automatic regulating gas back-pressure valve.

7. The process of claim 1 wherein, after reactants have been fully introduced into the reaction vessel, the reaction vessel is maintained at a predetermined reaction pressure and temperature for a minimum period of time.

8. The process of claim 7 wherein the minimum time is four hours.

9. The process of claim 1 wherein the excess anhydrous hydrofluoric acid is removed from the reaction vessel by evaporating the excess acid through a gas backpressure valve.

10. The process of claim 1 further comprising:

place the resultant metal fluoride product in an appropriately designed and constructed open container; and

place the container and its contents in an oven capable of maintaining an inert environment while heating the metal fluoride.

11. The process of claim 10 further comprising:

heating the resultant metal fluoride at 95°C ±4°C for a period of approximately two hours.

12. The process of claim 11 further comprising:

after heating the metal fluoride at 95°C ±4°C, bring the temperature of the metal fluoride to within 10°C of the metal fluoride's decomposition or melting point, whichever temperature is lower.

13. The process of claim 12 further comprising:

cooling the metal fluoride to ambient temperature in a sealed desiccator that is free of moisture and stray gases.

14. The process of claim 1 wherein the reaction vessel is capable of withstanding exposure to the anhydrous hydrofluoric acid and capable of operating under internal system working pressures in the range of zero to 400 psia and temperatures in the range of -200°F to 300°F.

15. The process of claim 14 wherein the reaction vessel is equipped with an automatic regulating gas back pressure valve, settable at back pressures ranging from zero psia to 400 psia.

16. The process of claim 14 wherein the reaction vessel is equipped with a plunger-type device that allows solid, granular reactant materials to be introduced to the reaction vessel, while the reaction vessel is under vacuum or pressure, without allowing fluids to escape from or enter into the reaction vessel.

17. The process of claim 1 further comprising:

purging the reaction vessel a minimum of three successive times with pure nitrogen gas; and

filling the reaction vessel with pure nitrogen gas to the pressure at which it is intended to conduct the reaction.

18. The process of claim 1 wherein the aliquots are 10% of the entire predetermined weight of the anhydrous metal.

19. The process of claim 1 wherein the aliquots are added using a plunger-type device that allows solid, granular reactant materials to be introduced to the reaction vessel, while the reaction vessel is under vacuum or pressure, without allowing fluids to escape from or enter into the reaction vessel.

20. The process of claim 1 wherein the weight ratio of the anhydrous hydrofluoric acid to anhydrous metal is a multiple of the stoichiometric combining weight of the metal reactant.

21. The process of claim 20 wherein the weight ratio is not less than 2 and not greater than 60.

22. The process of claim 20 further comprising:

determining an optimum weight ratio comprising:

producing batches of the metal fluoride at various ratios; and

rating the resultant metal fluoride product by its suitability for an intended application of such product.

23. The process of claim 1 wherein the process of removing excess anhydrous hydrofluoric acid from the reaction vessel comprises:

progressively reducing a set pressure on a gas backpressure valve, while maintaining a temperature above 19.8°C on the reaction vessel, until all of the anhydrous hydrofluoric acid has volatilized.

24. The process of claim 23 further comprising:

passing the volatilized vapor phase anhydrous hydrofluoric acid through a heat exchanger to reduce the temperature below the condensation temperature at standard atmospheric pressure; and

recovering and condensing the anhydrous hydrofluoric acid for use in the process again.

25. The process of claim 31 wherein the metal is anhydrous.

26. The process of claim 1 wherein the anhydrous metal is less than essentially chemically pure or not chemically pure.

27. The process of claim 31 wherein the hydrofluoric acid is anhydrous.

28 The process of claim 31 wherein the reaction vessel is set at a temperature other than the a predetermined reaction temperature.

29. The process of claim 31 wherein the metal is preheated, prior to introduction into the hydrofluoric acid, to a predetermined reaction temperature.

30. The process of claim 31 wherein the metal is preheated, prior to introduction into the hydrofluoric acid, to a temperature other than a predetermined reaction temperature.

31. A process for the production of metal fluorides comprising:

providing hydrofluoric acid in a reaction vessel;

introducing aliquots of a metal reactant into the hydrofluoric acid in the reaction vessel at intervals until a predetermined weight of the metal has been added, wherein the weight ratio of the hydrofluoric acid to metal is a multiple of a stoichiometric combining weight of the metal;

agitating the hydrofluoric acid and metal reactants in the reaction vessel;

venting excess hydrogen chloride gas generated during a reaction between the hydrofluoric acid and metal reactants; and

maintaining the hydrofluoric acid and metal reactants at a predetermined pressure and predetermined temperature for a minimum period following the introduction of the metal reactants.

32. The process of claim 31 further comprising:

removing a resultant metal fluoride product from the reaction vessel;

heating the metal fluoride product; and

placing the metal fluoride product in a desiccator.

33. The process of claim 31 wherein the hydrofluoric acid and metal reactant are anhydrous.

34 A process for producing ferric trifluoride comprising:

providing hydrofluoric acid in a reaction vessel;

introducing ferric trichloride into the hydrofluoric acid in the reaction vessel at intervals until a weight ratio of the anhydrous hydrofluoric acid to the ferric trifluoride is between 2 and 60;

agitating the hydrofluoric acid and ferric trichloride in the reaction vessel;

venting excess hydrogen chloride gas generated during a reaction between the hydrofluoric acid and ferric trichloride;

removing excess anhydrous hydrofluoric acid from the reaction vessel; and

removing a ferric trifluoride resultant product from the reaction vessel.

IX. EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131 and 1.132 or entered by and relied upon by the examiner is being submitted.

X. RELATED PROCEEDINGS APPENDIX

There are no related proceedings and consequently no copies of decisions rendered by a court or the Board in such proceedings.